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(54) **FUEL-FIRED BURNER WITH INTERNAL EXHAUST GAS RECYCLE**

(57) A fuel-fired burner 100 includes a combustion air inlet 113 for receiving combustion air coupled to a combustion air nozzle 136 at an input to a second chamber 152 within a burner housing 110 spaced apart from a third chamber 168 within the second chamber. The combustion air nozzle 136 directs the combustion air 171 into the third chamber 168. A fuel inlet 111 coupled to a burner nozzle 167 secured to a burner mounting plate 161 has a recycle port 164 for receiving hot exhaust gas provided to

an exhaust gas path 165. A jet pump located entirely inside the burner housing is configured to receive the hot exhaust gas from the exhaust gas path. The jet pump operates by flowing the combustion air through the combustion air nozzle 136 which suctions in the hot exhaust gas through the recycle port into the exhaust gas path then into a gas mixing zone 178 for mixing the hot exhaust gas and the combustion air.

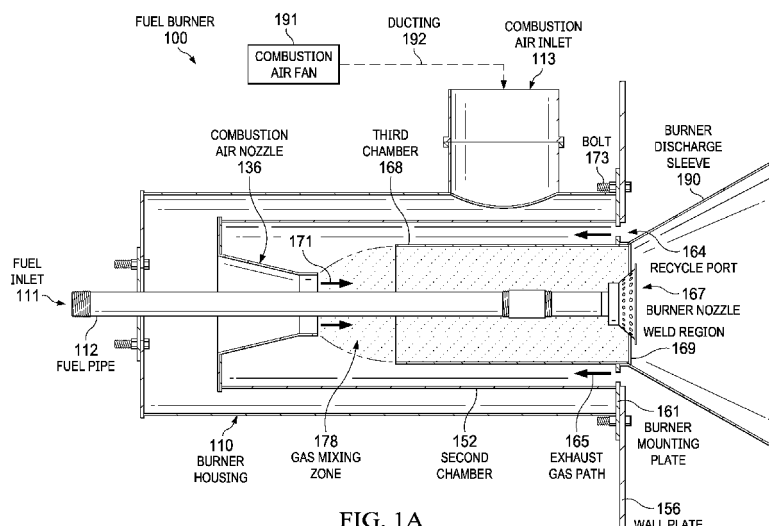


FIG. 1A



EUROPEAN SEARCH REPORT

Application Number

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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 3 174 526 A (VON LINDE ROBERT ALBERT) 23 March 1965 (1965-03-23) * column 1, line 8 - line 14; figure 3 * * column 2, line 28 - line 52 * * column 3, line 9 - line 22 * * column 3, line 49 - line 71 * -----	1-4,6	INV. F23C9/00 F23D14/20 F23D14/64 F23D99/00
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Place of search Munich		Date of completion of the search 19 December 2024	Examiner Hauck, Gunther
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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US 4130388	A	19 - 12 - 1978	NONE

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